ORIGINAL ARTICLE

Histopathological Study of Neoplastic Lesions of Oral Cavity and Oropharynx at Tertiary Care Centre

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ABSTRACT

Background: Current study was done with a prime objective to understand Incidence and Prevalence of benign & malignant lesions in different age group subjects with different sex identity along with clinical features. It was also sought to bring in to light about precancerous lesions in regard to oropharynx &oral cavity.

Method: 175 cases were considered for this study in respect of neoplastic lesions of oropharynx & oral cavity during May 2016 to April 2017.

Results: Out of 175 patients studied, 124 cases (70.86 %) were found to be malignant, 32 cases (18.29 %) were premalignant and 19 cases (10.86%) were benign. Males & females were in ratio of 2.18:1;respondents in age group of 61-70 years were found most commonly affected. Growth (33.71%) was observed as most common clinical presentation. 121 cases comprised 97.58% of malignant tumor were reported with Squamous cell carcinoma & was the most common malignant tumor. With regard to malignant neoplasms, the most common site found was the oral tongue (20.61%), preceded by Tonsil &Buccal mucosa. As most common preneoplastic lesion (65.62%), Dysplasia was observed & capillary hemangioma was the predominant benign lesion (36.84 %).

Conclusion: Oral and Oropharyngeal tumor is common in older males of low socioeconomic status. Malignant lesion found being commoner than benign due to tobacco chewing. As most common malignant neoplasm, Squamous cell carcinoma found as an emerging threat to community. Oral health programs should be initiated with special focus on creating strategies so as to improve current scenario where early diagnosis & prevention will be the key.

Key words: Oral Cavity, Oropharynx, Preneoplastic Lesions, Neoplastic Lesions, Dysplasia, Malignant Lesion

INTRODUCTION

Oral Cavity lesions are one of the most common lesions found in our day to day life. Oral cavity cancer is a diverse group of cancers that grow in multiple aspects of oral cavity, each with a unique set of risk factors, incidence, & clinical outcome[1]. As the most notable GLOBOCAN figures, there must be nearly 377,713 newly diagnosed cases of lip/oral cavity cancer as well as 98,412 new cases of oropharyngeal cancer globally in year 2020[2]. Oral cancer is indeed the 3rd most common cancer in emerging regions, trailing only cervical &Stomach cancer. Every year, an approximated 378,500 new cases of intra-oral cancer have been identified nationally and internationally[3]. Squamous cell carcinoma (SCC) arising from the lining mucosa, the squamous epithelium, account for more than 90% among all oral cavity malignant tumors[4]. Alcohol & Tobacco use are widely recognized potential risk factors for oral cavity cancers. Smoking is linked with an increased risk of malignant transformation than chewing tobacco, so both the rate and extent of smoking addiction are intrinsically linked to malignant transformation. 4-(Methyl-Nitrosamino)-1-(3-Pyridyl)-1-Butanone, N-Nitroso Nornicotine & Polycyclic Aromatic Hydrocarbons are by far the most prevalent and well-known Carcinogenic Chemicals in tobacco smoke oral cavity carcinogenesis[5]. Tobacco biting has popped up as a bigger and more powerful risk factor for oral carcinoma than smoking as it

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uncovers the mucosa straightforwardly for a prolonged period of time, whereas smoking has much more interactions with Oesophagus, Oropharynx, as well as Bronchi and Lungs.

MATERIAL & METHODS

The present study has been conducted prospectively on 175 cases of oropharynx & neoplastic lesions of oral cavity captured between May 2016 and April 2017 there at department of Pathology, J.L.N. Medical College & associated group of hospitals in Ajmer (Rajasthan). The material for analysis is comprised of all biopsy specimens & surgical resection samples collected with diagnostic procedures of neoplastic lesions of oral cavity & oropharynx obtained in department of Pathology from respective units of Medical College.

Inclusion criteria

1. A suitable and representative specimen of the lesion.
2. Surgical specimens that have been effectively excised, such as Punch/ Incisional/ Wedge Biopsies, Radical Neck Dissection, Surgical Excision, Hemimandibulectomy, Hemiglossectomy and soon are incorporated.
3. Oral Cavity &Oropharyngeal Neoplasm

Exclusion criteria

1. Poorly preserved specimen with handling artifact.
2. Inadequate clinical record (history and examination).
3. Nasopharynx-derived neoplasm

RESULTS

The current study was not a community-based study and therefore only involves specimens obtained in our pathology laboratory. To get a reasonable approximation of prevalence rate, cumulative oral cavity & oropharyngeal malignancy were evaluated by comparing to certain other neoplastic lesions. We found 6.2% of oral cavity and oropharyngeal cancer to total neoplastic lesions there in current study (Table 1).

As per findings of this study, 124 cases (70.86 %) were malignant, 19 cases (10.86 %) were benign, & 32 cases (18.29 %) were premalignant out of a sample of 175 cases. Respondents' mean age was 53.32 years in a wide range of 10 days - 87 years. Most prevalent group of age was between 61 to 70 years that comprises of 28 % (49 cases/175) & with 29.84% cases, highest incidence of oral malignancy was noted there in 7th decade of life (37 cases/124) (Table 1). Most lesions were more prevalent in males (85 cases) than those in female (39 cases). For malignant lesions, the male to female ratio was 2.17:1(Table 2). With 18.86%, Oral Tongue was the most frequently used spot (33/175) (Table 3, Figure 1). In addition, 20.16 % that is 25 cases in a total of 124 of malignant tumours appear on oral tongue (Table 4). With 41 cases comprising 23.43% of entire cases, Tobacco munching has been the most fairly common occurrence regarding oral cavity &oropharyngeal neoplastic lesions in this investigation (Table 5). 26.61% of 124 cases of malignant lesion were found associated with tobacco chewing & 16.13 % with smoking (Table 5). In the current study, the majority of cases (59; 33.71 %) displayed with growth, preceded by ulcer &ulceroproliferative growth (28; 16 %) (Figure 2, Table 6). The significant proportion of malignant lesions (42 out of 124 cases) furthermore demonstrates signs of growth (Table 7). With 97.58% that is 121cases out of entire 124 cases, Squamous cell carcinoma has been the most common malignant tumour; apart from these cases, 1 case of Adenoid cystic carcinoma, 1 case of Muco-epidermoid carcinoma, and 1 case of Non-Hodgkins lymphoma (Table 8) were other malignant types. There were 21 cases of dysplasia in premalignant lesions, 5 cases of Carcinoma in Situ, 5 cases of Leukoplakia, & 1 case of Erythroplakia. With 36.84% that is seven cases out of 19 cases, Pyogenic Granuloma was most widely known benign prior in the list namely Squamous Papilloma with 21.05% showing four cases out of 19, two cases of Pleomorphic Salivary Adenoma comprising of 10.52% and Angiofibroma, Schwannoma, Leiomyomatous Polyp, Oncocytoma, and Acrochorden have one case individually as well (Table 9). The present study noted a single case of Congenital Granular Cell Tumour (Figure 3). It was found in 10 month old female child on alveolar ridge noted since birth. It also observed that moderately differentiated carcinoma was most common grading of squamous cell carcinoma (Figure 4, Table 10).

Table 1: Incidence of Oropharyngeal Biopsies & Oral Cavity

Incidence of Oropharyngeal Biopsies &Oral Cavity							
	Biopsies received	Biopsies found to be neoplastic	Biopsies from oral cavity & oropharynx	Biopsies from neoplastic lesions of oral cavity and oropharynx	Benign	Pre-malignant	Malignant
No.	10234	2789	844	175	19	32	124
%		27.25%	8.01%	1.70%	0.18%	0.31%	1.21%

Table 2: Age wise distribution of oral cavity and oropharynx neoplasia cases

Age wise distribution					
S. No.	**Age group**	**Male**	**Female**	**No of cases**	**Percentage (%)**
1	0-10	0	1	1	0.57%
2	11-20	3	3	6	3.42%
3	21-30	2	3	5	2.86%
4	31-40	15	7	22	12.57%
5	41-50	27	13	40	22.86%
6	51-60	31	12	43	24.57%
7	61-70	34	15	49	28%
8	71-80	7	1	8	4.57%
9	81-90	1	0	1	0.57%
	Total	120	55	175	100

Table 3: Sex wise distribution oral cavity and oropharynx neoplasia

Sexwise distribution		
Sex	No. of Cases	Percentage (%)
Male	120	68.57
Female	55	31.43
Total	175	100

Table 4: Distribution of neoplastic lesions according to different sites in oral cavity and oropharynx

Distribution of neoplastic lesions		
S.N.	**Lesion's Site**	**Cases (%)**
1	Alveolus	17 (9.71%)
2	Buccal mucosa	29 (16.57%)
3	Floor of mouth	9 (5.14%)
4	Hard palate	10 (5.71%)
5	Lip	15 (8.57%)
6	Retromolar region	3 (1.71%)
7	Oral Tongue	33 (18.86%)
8	Base of tongue	18 (10.29%)
9	Pharyngeal wall	5 (2.86%)
10	Soft palate	5 (2.86%)
11	Tonsil	28 (16.00%)
12	Vallecula	3 (1.71%)
	Total	175 (100.0%)

Table 5: Oral cavity & Oropharyngeal Malignancies' distribution on the basis of Site

Oral cavity & Oropharyngeal Malignancies' distribution		
S. No.	**Lesion's Site**	**Cases & %**
1	Alveolus	11(8.87%)
2	Buccal mucosa	20 (16.13%)
3	Floor of mouth	6 (4.84%)
4	Hard palate	7 (5.65%)
5	Lip	3(2.42%)
6	Retromolar region	3 (2.42%)
8	Tongue	25 (20.16%)
9	Base of tongue	14 (11.29%)
10	Pharyngeal wall	5 (4.03%)
11	Soft palate	4 (3.23%)
12	Tonsil	23 (18.55%)
13	Vallecula	3 (2.42%)
Total		**124 (100%)**

Table 6: Distribution of habits among cases

Distribution of habits among cases		
S. N.	**Habits**	**Cases & (%)**
1	Smoking	22 (12.57%)
2	Tobacco/Pan chewing	41 (23.43%)
3	Alcohol	8 (4.57%)
4	Smoking+Tobacco/pan chewing	24 (13.71%)
5	Smoking+Alcohol	30 (17.14%)
6	Tobacco/pan chewing+Alcohol	17 (9.71%)
7	Tobacco/pan chewing +Smoking+Alcohol	3 (1.71%)
8	None	30 (17.14%)
Total		**175 (100.0%)**

Table 7: Presenting symptom of neoplastic case

Presenting symptom of neoplastic cases				
Symptom	**Benign**	**Premalignant**	**Malignant**	**Total (%)**
Pain	-	1	7	8 (4.57%)
Ulcer	-	7	21	28 (16.0%)
Growth	9	8	42	59 (33.71%)
Ulceroproliferative growth	-	-	28	28 (16.0%)
White patch	-	7	-	7 (4%)
Swelling	10	1	-	11(6.29%)
Mass in neck	-	-	7	7 (4%)
Change in voice	-	3	3	6 (3.43%)
Difficulty in swallowing	-	3	9	12 (6.86%)
others	-	4	5	9 (5.14%)
Total	19	32	124	175 (100%)

Table 8: Histopathological diagnosis of Malignant Tumours

Histopathological diagnosis of Malignant Tumours	
Histopathological Diagnosis	Cases & (%)
Squamous Cell Carcinoma	121 (97.58%)
Mucoepidermoid Carcinoma	1 (0.81%)
Adenoid Cystic Carcinoma	1 (0.81%)
Diffuse Large B Cell Lymphoma	1 (0.81%)
Total	124 (100%)

Table 9: Histopathological diagnosis of neoplastic cases

Histopathological diagnosis of neoplastic cases			
S.N.	**Histopathological Diagnosis**	**No. of Cases**	**Percentage (%)**
1	Acrochordon	1	0.57
2	Angiofibroma	1	0.57
3	Capillary hemangioma	7	4.00
4	Leiomyomatous polyp	1	0.57
5	Oncocytoma	1	0.57
6	Pleomorphic Salivary Adenoma	2	1.14
7	Congenital granular cell tumour	1	0.57
8	Neurilemmoma	1	0.57
9	Squamous Papilloma	4	2.29
10	Dysplasia	21	12.00
11	Leukoplakia	5	2.86
12	Erythroplakia	1	0.57
13	Carcinoma in Situ	5	2.86
14	Adenoid cystic carcinoma	1	0.57
15	Diffuse large B cell lymphoma	1	0.57
16	Mucoepidermoid carcinoma	1	0.57
17	SCC	121	69.14
	Total	175	100.00

Table 10: Squamous Cell Carcinoma's Histopathological Grading

Squamous Cell Carcinoma's Histopathological Grading		
Squamous Cell Carcinoma's Histopathological Grading	Cases	(%)
Well- Differentiated	50	41.32
Moderately- Differentiated	68	56.2
Poorly- Differentiated	3	2.48
Total	121	100

Figure 1: Photograph of hemiglossectomy specimen showing Firm gray white growth involving whole tongue 0.5 cm away from all margins

Figure 2: Photograph of ulcer proliferative growth on lower lip

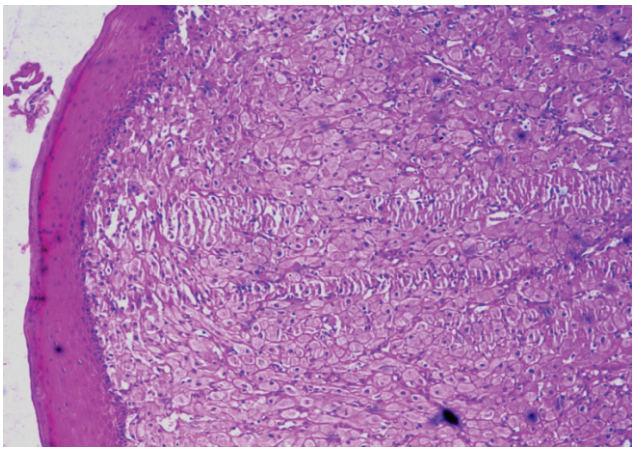

Figure 3: Congenital granular cell tumour H&E 100X

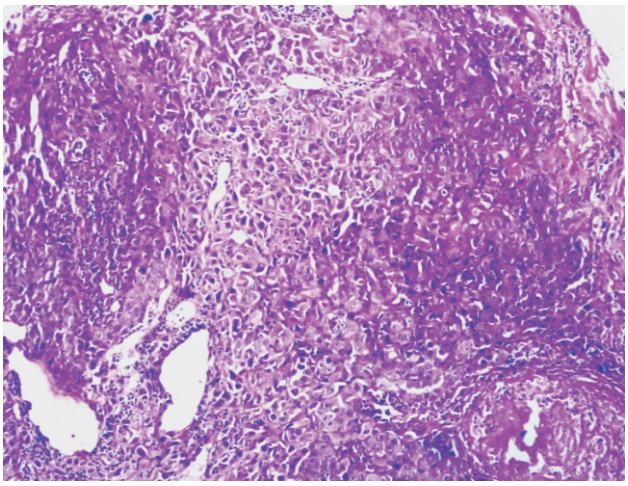

Figure 4: Moderately differ entiated squamous cell carcinomasshowing Nest of tumourcells. H&E 100X

DISCUSSION

In a case of India, the oral cavity is among the most common places for neoplasm, specifically in males. As fallout of increased tobacco consumption both in terms of munching & smoking is leading to variability of malignancy in India.

The study, which lasted through May 2016 - April 2017, included 175 malignant or benign oral cavity & oropharyngeal neoplastic lesions that were then assessed to explore clinical manifestations as well as histopathological trends among all neoplastic lesions. Drawn conclusions were then evidenced & scholarly works of other researchers of repute were then equated with these conclusions. Because the present study cannot anticipate the precise occurrences in the normal community, a statistical assessment of oral cavity &oropharyngeal cancer incidence to total neoplastic lesions was accomplished. Researchers ascertained 6.6% of oral cavity &oropharyngeal cancer to total neoplastic lesions in the present investigation that was nearly equivalent to Thakur, B. S.[6] 6.23 % as well as Sharma et al[7] 7 % of oral cavity &oropharyngeal cancer to total cancer. The minor difference could be credited to local variations in tobacco munching attitudes as well as other health and wellness factors associated. The age group 61-70 years (7th decade) was the most common in this study for developing oropharygealtumours & oral cavity, which is line with the observations of Bhat et al[8]. This study also reveals that females are less affected as compared to males as also depletes by ratio (male to female ratio - 2.18:1). Male to female ratio was 2.17:1 in case of

malignant lesions & that was found with the line of outcomes of the study by Abhinandan et al[9] (2.14:1) & MriduManjari et al[10] (2.18:1). Present study reveals 23.43 % cases with habit of tobacco chewing & 17.14% were both in habit of smoking & alcohol all together. On the contrary, Thakur B.S. (1975)[6] noted 42.7% smoker & 89.3% with a develop habit of chewing tobacco.

Tobacco/pan chewing (26.43%) was found as most common habit associated with oral and oropharangeal malignant tumours in current study that is then followed by smoking with 16.13%, smoking all together with alcohol (15.32%) and tobacco/pan chewing & smoking both (12.90 %) where as 11.29% in all comprising of only 14 cases were not found with any such history of orientation. Oral (tongue) with 18.86% was there major cases in current study followed by 16.57% cases of buccal mucosa which is in line with outcomes of Modi et al[11] who stated 30.8% cases of oral (tongue) and 28.20% of cases related tobuccal mucosa. With 20.1% (25 cases) oral (tongue) was reported as most common spot amongst malignant lesions in current study that is identical with the findings extracted in the study by Iype E Metal[11], Patel MM et al[12], Duzlu et al[13], Selvi U. P. at al.[14]

Study conducted by Agrawal et al [15]also showed tongue as the most common site followed by tonsil. 97.58% cases were found with squamous cell carcinoma in current study, 0.81% each was having Adenoid Cystic Carcinoma & Non-Hodgkins Lymphoma. With 93.3%, squamous cell carcinoma was found dominating group as stated by Mridu Manjari et al[10] in their study, 1.71% with Adenoid cystic carcinoma, 0.19% with Mucoepidermoid Carcinoma & 0.38% with non-hodgkins Lymphoma in line of this current study.

CONCLUSION

According to our findings, the significant proportion of oral cavity & oropharyngeal lesions were malignant. The most common place for neoplastic lesions of oral (cavity) & oropharynx was indeed the oral (tongue). Carcinoma was the most frequently diagnosed type, with Squamous cell carcinoma being the most prevalent type. The oral tongue had the highest proportion of Squamous cell carcinoma cases. Salivary gland tumours, both malignant and benign, have also been ascertained. Squamous papilloma, lobular capillary haemangioma, granular cell tumour, angiofibroma, oncocytoma, acrochorden, leiomyomatous polyp, pleomorphic salivary adenoma, and schwannoma were among the benign tumours identified. In the administration of oral lesions, a significant increase of presumption based on clinical findings & risk factors associated, as well as accurate and consistent histopathological typing of lesions to affirm or govern out malignancy, is considered necessary.

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